Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of claims:

Claims 1-5 are cancelled.

6. (Withdrawn) A multipoint-to-point, orthogonal frequency division multiplexing (OFDM) communication system, the system comprising:

a multipoint-to-point host unit;

a plurality of remote units communicatively coupled to the multipoint-to-point host unit;

wherein the plurality of remote units communicate with the multipoint-to-point host unit using a plurality of orthogonal tones within an OFDM waveform; and

wherein the plurality of remote units are synchronized such that the plurality of orthogonal tones in the OFDM waveform are orthogonal at the multipoint-to-point host unit.

7. (Withdrawn) The system of claim 6, wherein the multipoint-to-point host unit estimates a timing error for at least one of the plurality of remote units and transmits a timing adjustment to the at least one of the plurality of remote units to synchronize the at least one of the plurality of remote units.

8. (Withdrawn) The system of claim 6, wherein the multipoint-to-point host unit estimates a frequency error in a carrier of at least one of the plurality of remote units and transmits a frequency adjustment to the at least one of the plurality of remote units to synchronize the at least one of the plurality of remote units.

9. (Withdrawn) The system of claim 6, wherein the multipoint-to-point host unit estimates an amplitude error in a carrier of at least one of the plurality of remote units and transmits an amplitude adjustment to the at least one of the plurality of remote units to synchronize the at least one of the plurality of remote units.

10. (Withdrawn) A system comprising:

a host unit; and

a plurality of remote units that use a multiple access scheme to transmit on a radio frequency carrier using orthogonal frequency division multiplexing (OFDM) so that transmissions from the plurality of remote units are received at the host unit synchronized within an OFDM waveform.

11. (Withdrawn) The system of claim 10, wherein in the multiple access scheme, the host unit receives at least a portion of transmissions from at least two of the plurality of remote units at the same time.

12. (Withdrawn) The system of claim 10, wherein the multiple access scheme is a time division multiple access scheme.

13. (Withdrawn) The system of claim 10, further comprising a distribution network wherein the host unit communicates with the plurality of remote units using the distribution network, wherein the distribution network comprises a hybrid fiber coax network.

14. (Withdrawn) The system of claim 10, further comprising a distribution network wherein the host unit communicates with the plurality of remote units using the distribution network, wherein the distribution network comprises a wireless system.

15. (Withdrawn) A multipoint-to-point, orthogonal frequency division multiplexing (OFDM) communication system comprising:

at least one host unit including a demodulator that demodulates upstream information from a plurality of tones within an OFDM waveform; and

a plurality of remote units, the plurality of remote units synchronously modulating the plurality of tones with the upstream information so that when received at the host unit the plurality of tones are orthogonal within the OFDM waveform.

16. (New) A head end controller that controls a plurality of service units in a telecommunications system with a multi-carrier transmission scheme, the head end controller comprising:

a logic circuit that generates control messages for the plurality of service units, wherein each service unit is assigned to at least one subband of a transmission bandwidth;

a transceiver that is coupled to a distribution network of the transmission system, wherein the transceiver broadcasts control messages to the plurality of service units; and

wherein the plurality of service units are configured to use a multiple access scheme to transmit on a radio frequency carrier using orthogonal frequency division multiplexing (OFDM) so that transmissions from the plurality of service unit are received from the distribution network at the transceiver synchronized within an OFDM waveform.

17. (New) The head end controller of claim 16, wherein the logic circuit estimates a timing error for at least one of the plurality of service units and transmits a timing adjustment to the at least one of the plurality of service units to synchronize the at least one of the plurality of service units.

18. (New) The head end controller of claim 16, wherein the logic circuit estimates a frequency error in a carrier of at least one of the plurality of service units and transmits a frequency adjustment to the at least one of the plurality of service units to synchronize the at least one of the plurality of service units.

19. (New) The head end controller of claim 16, wherein the multipoint-to-point host unit estimates an amplitude error in a carrier of at least one of the plurality of service units and transmits an amplitude adjustment to the at least one of the plurality of service units to synchronize the at least one of the plurality of remote units.

20. (New) A head end controller that controls a plurality of service units in a telecommunications system with a multi-carrier transmission scheme, the head end controller comprising:

a logic circuit that generates control messages for the plurality of service units, wherein each service unit is assigned to at least one subband of a transmission bandwidth;

a transceiver that is coupled to a distribution network of the transmission system, wherein the transceiver broadcasts the control messages to the plurality of service units; and

wherein the logic circuit generates control messages to at least one of the plurality of service units to synchronize the at least one of the plurality of service units such that a plurality of tones in an Orthogonal Frequency Division Multiplexing (OFDM) waveform are orthogonal at the transceiver.

21. (New) The head end controller of claim 20, wherein in the transceiver receives at least a portion of transmissions from at least two of the plurality of service units at the same time.

22. (New) The system of claim 20, wherein the plurality of service units use a multiple access scheme to transmit on a radio frequency carrier using orthogonal frequency division multiplexing (OFDM) so that transmissions from the plurality of remote units are received at the transceiver synchronized within an OFDM waveform.

22. (New) The head end controller of claim 22, wherein the multiple access scheme is a time division multiple access scheme.

23. (New) The head end controller of claim 20, wherein the distribution network comprises a hybrid fiber coax network.

24. (New) The head end controller of claim 20, wherein the distribution network comprises a wireless system.

25. (New) A head end controller that controls a plurality of service units in a telecommunications system with a multi-carrier transmission scheme, the head end controller comprising:

a logic circuit that generates control messages for the plurality of service units, wherein each service unit is assigned to at least one subband of a transmission bandwidth;

a transceiver that is coupled to a distribution network of the transmission system, wherein the transceiver broadcasts the control messages to the plurality of service units; and

wherein the transceiver receives an orthogonal frequency division multiplexing waveform, the orthogonal frequency division multiplexing waveform comprising a plurality of tones transmitted by the plurality of service units;

wherein the logic circuit is configured to transmit frequency, amplitude and phase adjustment information to a first service unit of the plurality of service units so that when any tones are transmitted from the first service unit and at least one other service unit of

the plurality of service units, the plurality of tones are substantially orthogonal when received at the host unit.